Description

This homework assignment covers Chapter 5: 5.1, 5.2, 5.3, 5.4... Please work as many problems as possible and turn in your work by the due date. Late homework is NOT accepted. As always, if you need anything, please email me Joshua.Patterson@tamuc.edu

1. Question Details SPreCalc6 5.1.001. [2684226]

(a) The unit circle is the circle centered at ( ) with radius [ ].

(b) The equation of the unit circle is .

(c) Suppose the point $P(x, y)$ is on the unit circle. Find the missing coordinate.

(i) $P(1, \square)$

(ii) $P(\square, 1)$

(iii) $P(-1, \square)$

(iv) $P(\square, -1)$

2. Question Details SPreCalc6 5.1.002. [2684200]

(a) If we mark off a distance t along the unit circle, starting at (1, 0) and moving in a counterclockwise direction, we arrive at the ---Select--- point determined by t.

(b) What are the terminal points determined by $\pi/2$, π, $-\pi/2$, and 2π?

$\pi/2$ $(x, y) = ($ $)$

π $(x, y) = ($ $)$

$-\pi/2$ $(x, y) = ($ $)$

2π $(x, y) = ($ $)$

3. Question Details SPreCalc6 5.1.009. [2684190]

Find the missing coordinate of P, using the fact that P lies on the unit circle in the given quadrant.

Coordinates	Quadrant
$P\left(-\frac{12}{13}, \quad\right)$	III

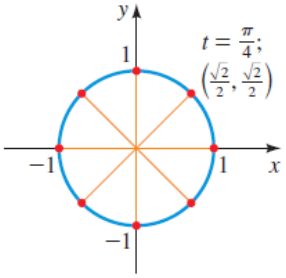
4. Question Details SPreCalc6 5.1.011. [2684220]

Find the missing coordinate of P, using the fact that P lies on the unit circle in the given quadrant.

Coordinates	Quadrant
$P\left(\quad, \frac{1}{9}\right)$	II

5. Question Details SPreCalc6 5.1.021. [1713018]

Consider the following.

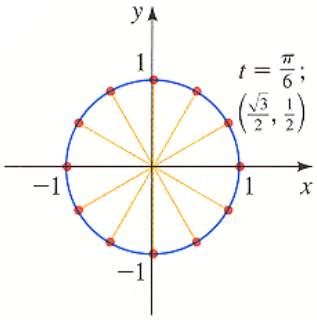


Find t and the terminal point determined by t for each point in the figure, where t is increasing in increments of $\pi/4$.

t	Terminal Point
0	( )
$\frac{\pi}{4}$	$\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$
	( )
	( )
	( )
	( )
	( )
	( )
2π	( )

6. Question Details SPreCalc6 5.1.022. [1713072]

Consider the following.



Find t and the terminal point determined by t for each point in the figure, where t is increasing in increments of $\pi/6$.

t	Terminal Point
0	( )
$\frac{\pi}{6}$	$\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$
	( )
	( )
	( )
	( )
	( )
	( )
	( )
	( )
	( )
	( )
2π	( )

7. Question Details SPreCalc6 5.2.001. [2694175]

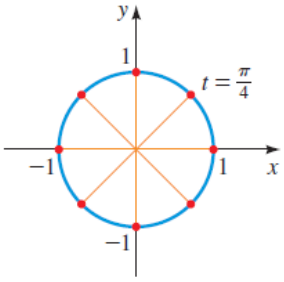
Let $P(x, y)$ be the terminal point on the unit circle determined by t. Then $\sin t =$, $\cos t =$, and $\tan t =$.

8. Question Details SPreCalc6 5.2.002. [1715881]

If $P(x, y)$ is on the unit circle, then $x^2 + y^2 =$ [ ]. So for all t we have $\sin^2 t + \cos^2 t =$ [ ].

9. Question Details SPreCalc6 5.2.003. [2694129]

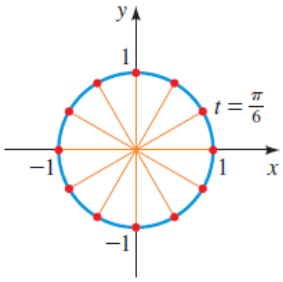
Find sin t and cos t for the values of t whose terminal points are shown on the unit circle in the figure. t increases in increments of $\pi/4$.



t	sin t	cos t
0		
$\frac{\pi}{4}$		
$\frac{\pi}{2}$		
$\frac{3\pi}{4}$		
π		
$\frac{5\pi}{4}$		
$\frac{3\pi}{2}$		
$\frac{7\pi}{4}$		

10. Question Details SPreCalc6 5.2.004. [2694159]

Find sin t and cos t for the values of t whose terminal points are shown on the unit circle in the figure. t increases in increments of $\pi/6$.



t	sin t	cos t
0		
$\frac{\pi}{6}$		
$\frac{\pi}{3}$		
$\frac{\pi}{2}$		
$\frac{2\pi}{3}$		
$\frac{5\pi}{6}$		
π		
$\frac{7\pi}{6}$		
$\frac{4\pi}{3}$		
$\frac{3\pi}{2}$		
$\frac{5\pi}{3}$		
$\frac{11\pi}{6}$		

11. Question Details SPreCalc6 5.2.011. [1776239]

Find the exact value of the trigonometric function at the given real number.

(a) $\sin \frac{19\pi}{6}$

(b) $\csc \frac{19\pi}{6}$

(c) $\cot \frac{19\pi}{6}$

12. Question Details SPreCalc6 5.2.012. [1776283]

Find the exact value of the trigonometric function at the given real number.

(a) $\cos\left(-\frac{\pi}{3}\right)$

(b) $\sec\left(-\frac{\pi}{3}\right)$

(c) $\tan\left(-\frac{\pi}{3}\right)$

13. Question Details SPreCalc6 5.2.015. [1776309]

Find the exact value of the trigonometric function at the given real number.

(a) $\sec\frac{15\pi}{4}$

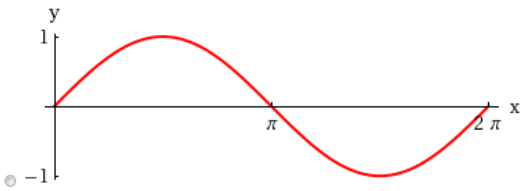
(b) $\csc\frac{15\pi}{4}$

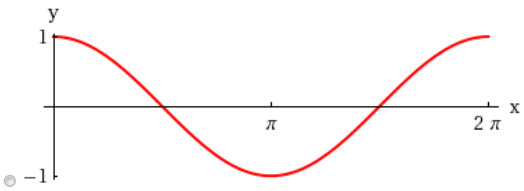
(c) $\sec\left(-\frac{\pi}{6}\right)$

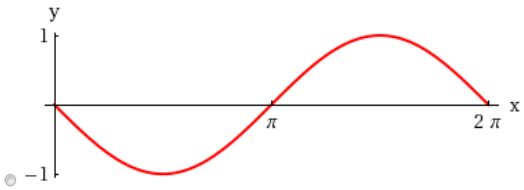
14. Question Details SPreCalc6 5.3.001. [2705962]

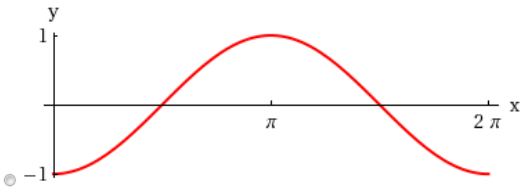
The trigonometric functions $y = \sin x$ and $y = \cos x$ have amplitude and period . Sketch a graph of each function on the interval $[0, 2\pi]$.

$y = \sin x$

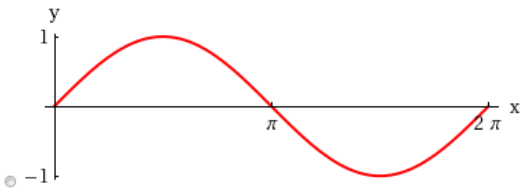


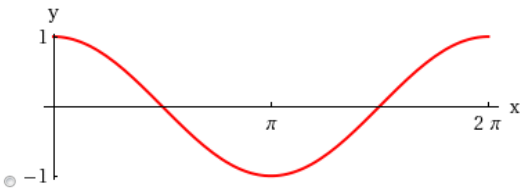


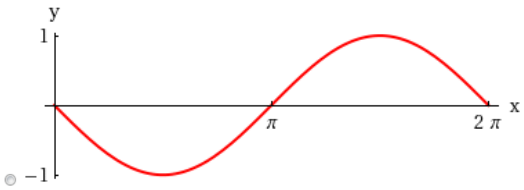


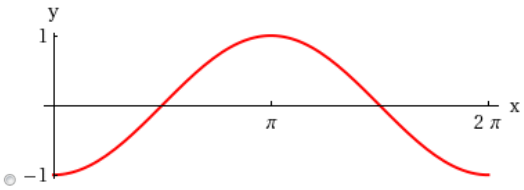


$y = \cos x$





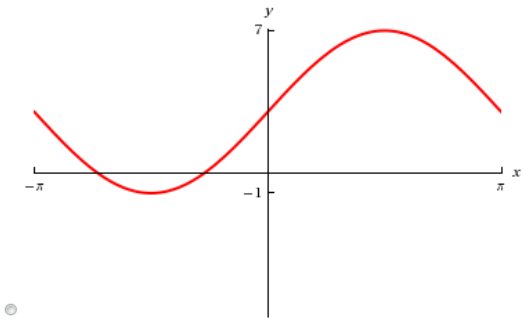


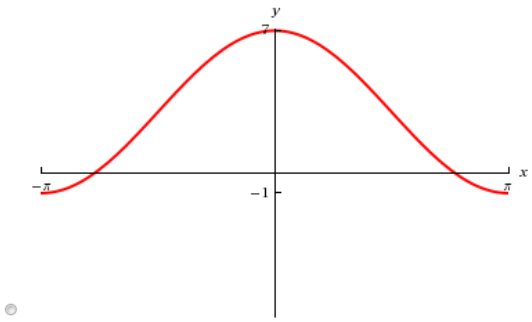


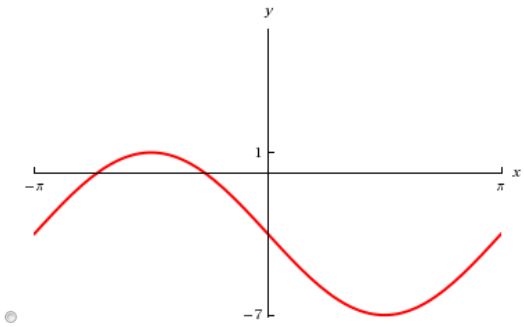
15. Question Details SPreCalc6 5.3.013. [1775018]

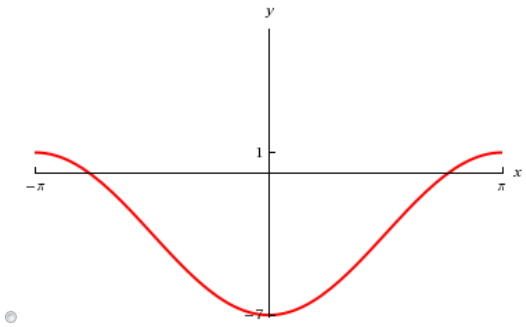
Graph the function.

$g(x) = 3 + 4 \cos x$









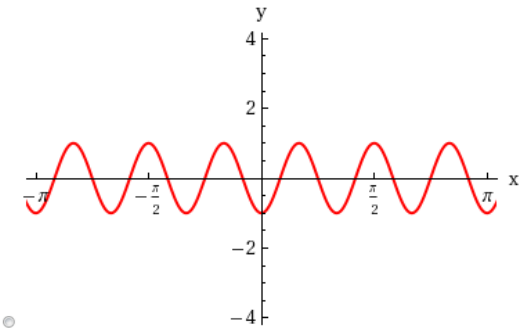
16. Question Details SPreCalc6 5.3.017. [1768629]

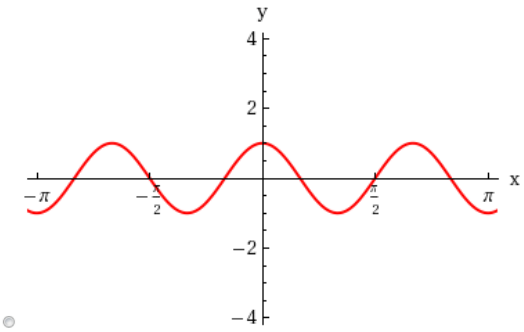
Find the amplitude and period of the function, and sketch its graph.

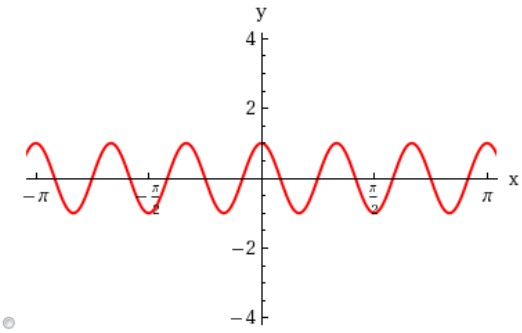
$y = \cos 6x$

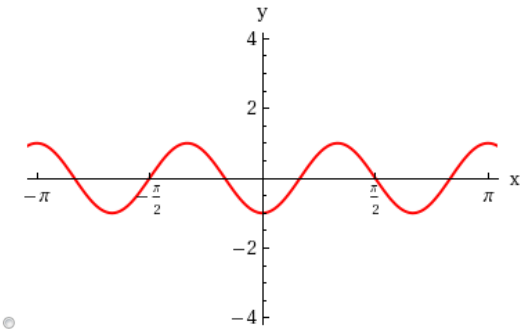
(amplitude)

(period)









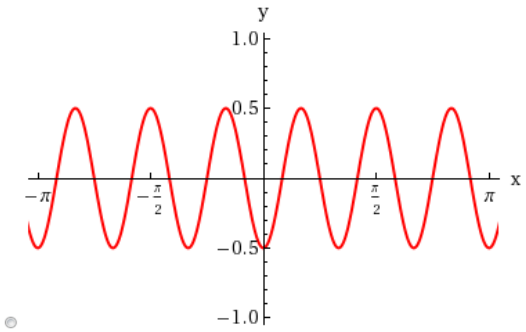
17. Question Details SPreCalc6 5.3.020.MI. [2655630]

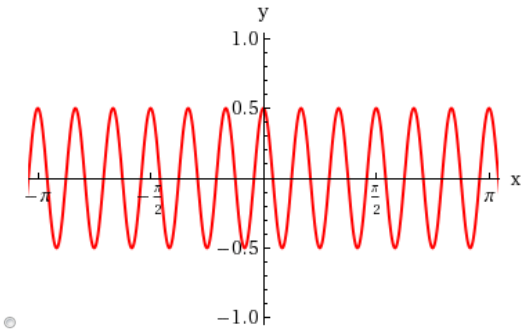
Find the amplitude and period of the function, and sketch its graph.

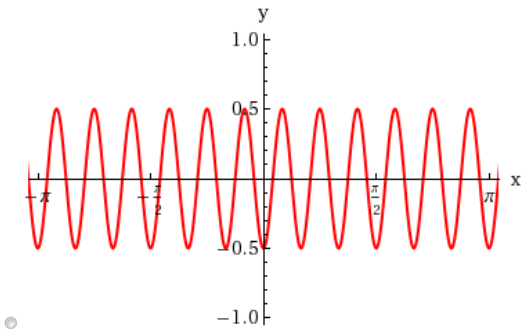
$$y = \frac{1}{2}\cos 6x$$

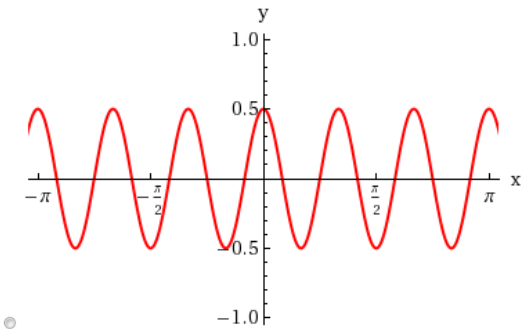
amplitude

period









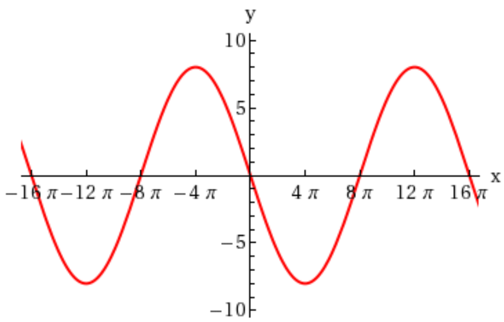
18. Question Details SPreCalc6 5.3.021. [1768634]

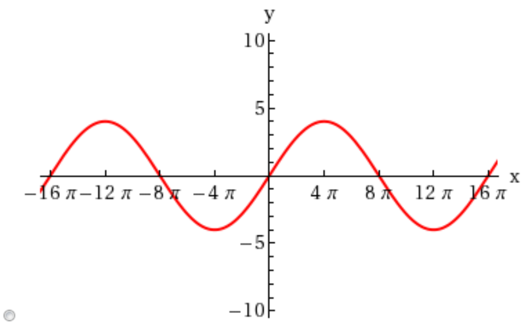
Find the amplitude and period of the function, and sketch its graph.

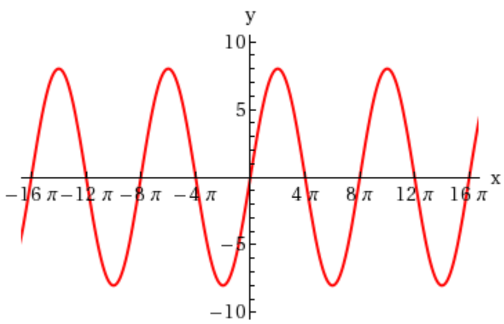
$y = 8 \sin \frac{1}{8}x$

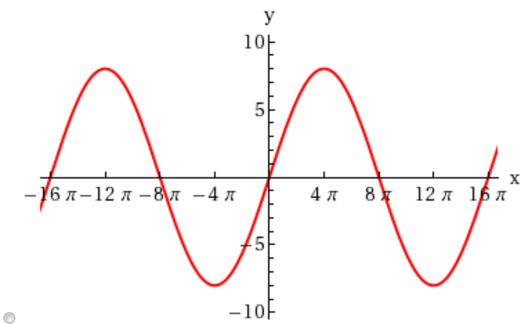
(amplitude)

(period)







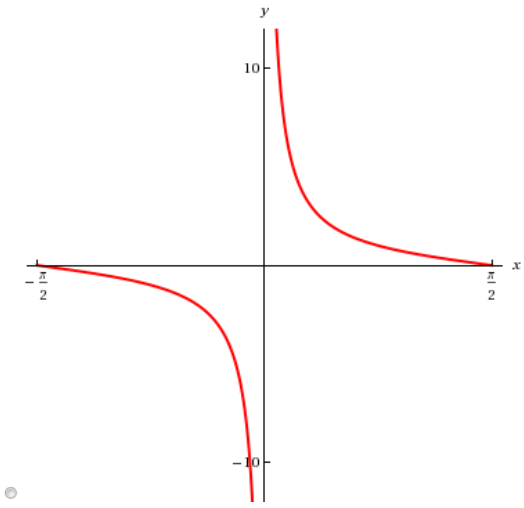


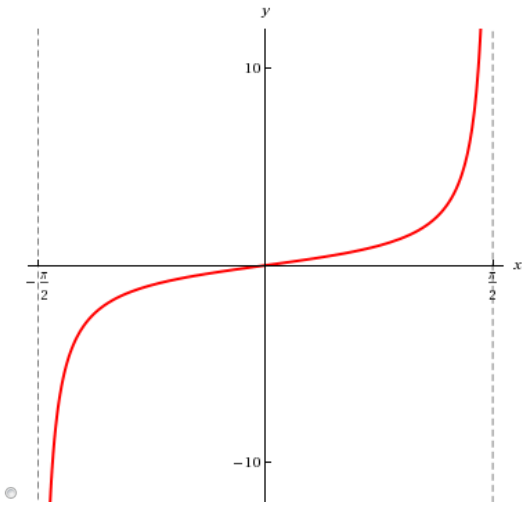
19. Question Details SPreCalc6 5.4.001. [1716533]

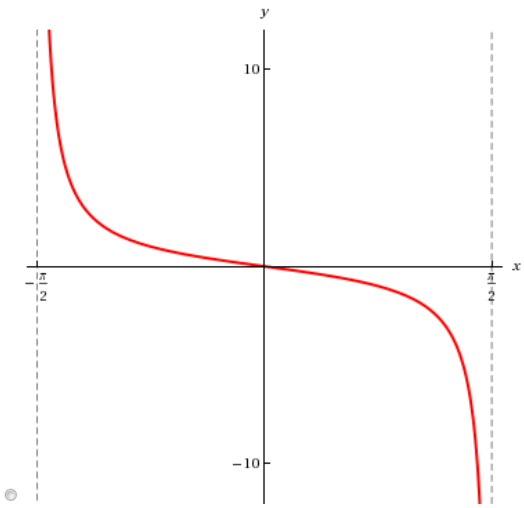
The trigonometric function $y = \tan x$ has period and the following asymptotes.

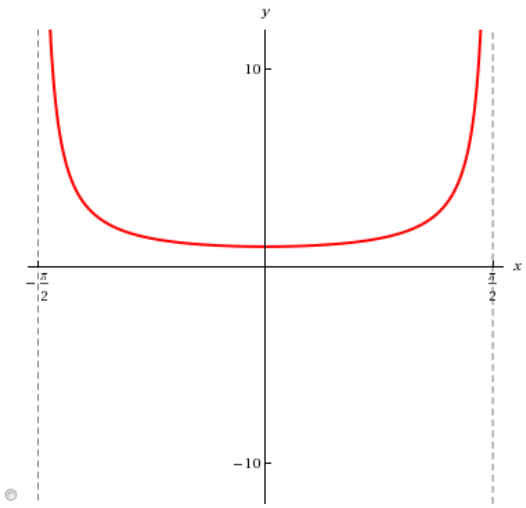
- $x = \frac{\pi}{2} + n\pi$ (n is an integer)
- $x = \frac{\pi}{2} + 2n\pi$ (n is an integer)
- $x = \frac{3\pi}{2} + 2n\pi$ (n is an integer)
- $x = 2n\pi$ (n is an integer)
- $x = n\pi$ (n is an integer)

Sketch a graph of this function on the interval $(-\pi/2, \pi/2)$.







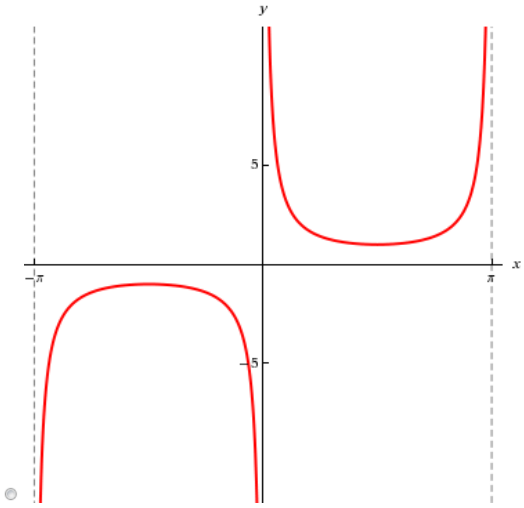


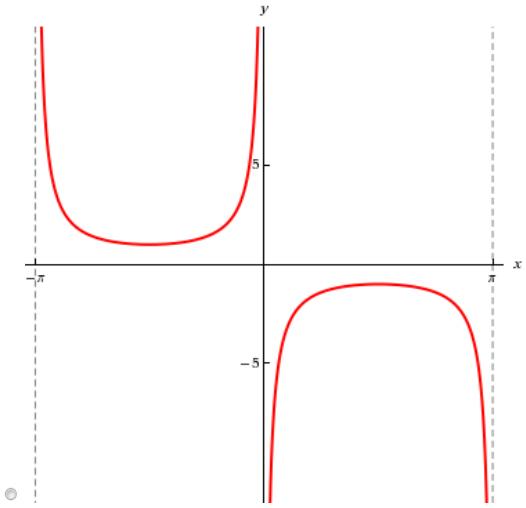
20. Question Details SPreCalc6 5.4.002. [1716581]

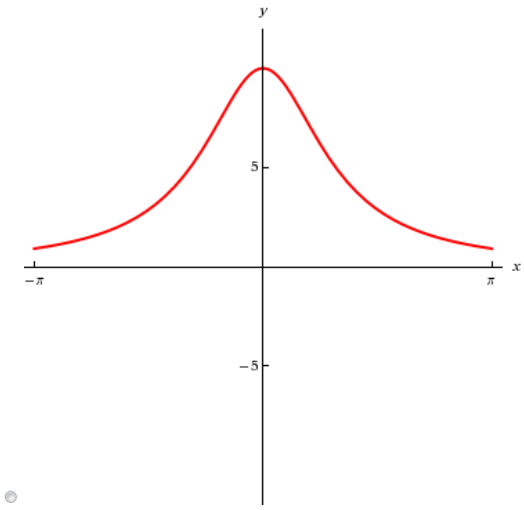
The trigonometric function $y = \csc x$ has period and the following asymptotes.

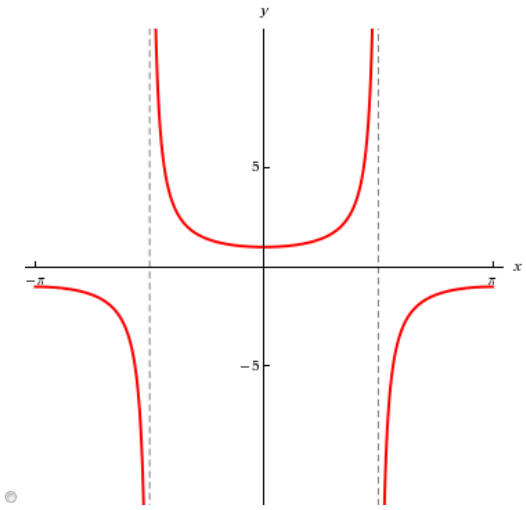
- $x = \frac{\pi}{2} + 2n\pi$ (n is an integer)
- $x = \frac{3\pi}{2} + 2n\pi$ (n is an integer)
- $x = n\pi$ (n is an integer)
- $x = \frac{\pi}{2} + n\pi$ (n is an integer)
- $x = (2n+1)\pi$ (n is an integer)

Sketch a graph of this function on the interval $(-\pi, \pi)$.









Assignment Details